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ABSTRACT

Sixty second grade children were randomly assigned to same sex pairs and each pair was randomly assigned to one of three treatment groups: aggressive cartoon, nonaggressive cartoon, and no cartoon. Results indicated that there was no difference among the groups on measures of interpersonal aggression although boys exhibited significantly more aggression than girls. Boys also demonstrated more prosocial behavior (sharing) than girls, although those who viewed the aggressive cartoon performed this response at a reduced rate. On the basis of existing evidence it was concluded that aggressive cartoons have little effect on children's aggression in interpersonal play. (Author)

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The Effect of Aggressive Cartoons Children's Interpersonal Play

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A number of laboratory investigations have attempted to test the differential prediction of two theories concerning the effects of exposure to film-mediated aggressive models. The catharsis hypothesis (Walters, 1966), in the psychoanalytic sense, predicts that such models would liberate aggressive feelings through their expression in fantasy while social learning theory (Bandura & Walters, 1963) predicts that such exposure increases aggressive behavior. In Maccoby's (1964) review of these studies she concluded that aggressive films arouse, rather than discharge aggressive impulses in children. Two years later Walters (1966) reviewed the evidence with regard to both children and adults and arrived at a similar conclusion: "Laboratory studies of imitative behavior indicate that observation of aggressive social models, either in real life or in fantasy productions, increases the probability that the observers will behave in an aggressive manner if the model is rewarded or does not receive punishment for aggressive behavior (p. 60)."

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All indications are that this problem continues to be of critical importance as evidenced by the appointment of a Task Force on Mass Media and Violence by the U. S. National Commission on the Causes and Prevention of Violence. Their somewhat puzzling conclusion with respect to "short run effects" are:

1. Exposure to mass media portrayals of violence stimulates violent behavior when--

   (a) Subjects are either calm or anxious prior to

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exposure, but more so when they are not frustrated, insulted, or otherwise angered.

(b) Aggressive or violent cues are presented (e.g. weapons of violence).

(c) Subjects are exposed either to justified or unjustified violence, but more so when justified violence is portrayed (Baker & Ball, 1969, p. 367).

Recent public concern has emphasized one aspect of this conclusion, i.e. the possible effects of cartoons on children; Zusne (1968) measured the extent of cartoon violence portrayed on weekend television programs and at least one critic (O'Flaherty, 1969) has referred to them as "Murder on Saturday Morning."

Bandura and Walters (1963) have stated that the observation of such models would have a disinhibiting effect on the observer (p. 60). Since aggressive responses already exist in the S's repertory, viewing aggressive films would weaken inhibitions, thereby evoking these responses. Although the results of studies concerned with the acquisition of novel aggressive responses (e.g. Bandura, 1965; Bandura, Ross, & Ross, 1963a; 1963b, Kuhn, Madsen, & Becker, 1967) have supported predictions of social learning theory, the evidence for disinhibitory effects of cartoons on children's aggression is equivocal. Typically, children have been exposed to either aggressive or nonaggressive cartoons and their behavior was then compared in various test situations. Siegel (1956) placed same-sex pairs of Ss in a free play situation and measured aggression exhibited toward toys and peers. Boys were significantly more aggressive than girls but there was no cartoon effect, possibly because there were too many toys for the children to play with on an individual basis. In two subsequent studies

children were tested individually. Lovaas (1961) obtained the predicted results; the differences, however, may be attributable to the effect of instructions. Mussen and Rutherford (1961) employed a similar design but found significant differences between groups only in the S's verbal expression of aggressive impulses. These are the only cartoon studies reported thus far. The present investigation differs from these in that 1) particular emphasis was placed on the rating on interpersonal aggression and, 2) only one child could use the highly attractive goal object available to both children in the testing situation. Such a measure appeared most desirable since the ultimate criterion for assessing the effects of aggressive films is whether or not children who have seen such films become more aggressive in interpersonal situations.

The hypotheses tested were: (1) Ss viewing the aggressive cartoon will exhibit higher scores in aggression that Ss viewing the nonaggressive film and (2) boys will score higher in aggression than girls.

Method

Subjects

Sixty second grade children between the ages of 6 years 10 months and 8 years 3 months enrolled in a New York State metropolitan area school, served as Ss. Since all children within the city are eligible to attend this school, the sample was heterogeneous with regard to race and social class. Of the 30 boys and 30 girls who participated in the study, 10 boys and 17 girls were Negro while 20 boys and 13 girls were white. Although all parents attained at least a ninth grade education, all occupational

levels of the McGuire-White Scale (Kennedy, 1968) were represented. The mean IQ score for the sample was 103.4 (SD = 12.6) as measured by the Lorge Thorndike.

Design

A 3 x 2 factorial design was employed in this investigation. A pilot study revealed that children who were not familiar with each other were generally more inhibited in the test situation than children who knew each other well. Therefore, in order to control for prior associations and to maximize the probability of aggression Ss were assigned to conditions in the following manner: within the three classrooms used, Ss were randomly assigned to same sex pairs and each pair of children was randomly assigned to one of three groups, each group containing 10 pairs of boys and 10 pairs of girls. Due to the small size of one of the classes four children were assigned to pairs across classes. However, this procedure was followed only after interviews with the teachers and children revealed that the children were acquainted with one another. One pair was enrolled in the same class in the first grade and attended "specials" together at the time of the investigation while the other pair of children lived in the same neighborhood. The three treatment conditions included: (1) presentation of an aggressive cartoon, (2) a nonaggressive cartoon, and (3) no cartoon.

Previous research has shown that presence of an adult increases the probability that children will exhibit aggressive responses in a free play situation while adult absence inhibits the expression of aggression (Hicks, 1968; Siegel, 1957; Siegel & Kohn, 1959). Therefore, in order to maximize

the probability of aggression the experimenter was present throughout all testing in the present investigation.

Films

Three types of films were used: (1) treatment-aggressive, (2) treatment-nonaggressive, and (3) test film.[2] The aggressive treatment films, lasting a total of 12 minutes, portrayed a continuous sequence of interpersonal aggression and hostility between Woody Woodpecker and a wolf in one case and a bandit in the other. In the nonaggressive film a narrator told the history of musical instruments with the aid of animated cartoon characters. This film was 10 minutes in duration and was specifically designed for young children. Both treatment films were in color. The test film depicted the birth of the earth and its first living creatures. A pilot study revealed that children were strongly attracted by the bright, flashing colors, the exciting narration and music, and were particularly eager to see the dinosaurs.

Apparatus

Each pair of children was given the opportunity to engage in only one attractive activity, watching a "peep show". This consisted of a large heavy box (mounted on a table) which contained a movie projector and telescreen. The box was brightly painted and one distinct color was used to highlight the location of one hole, one inch in diameter, in the wall of the box. This provided the only means of viewing the movie within and the size was such that only one child could "peep" through it at a time. However, sound was audible to both Ss since the speaker was placed outside the box. In addition, a small chair was placed in front of the hole. At the opposite end of the room was a large desk, a chair, and a

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camera. Although in plain view the camera was virtually ignored by the Ss, as was the small microphone placed next to the box. A video tape recorder was concealed below E's desk.

Procedure

All of the children were invited to "see some cartoons". In order to minimize their knowledge of the films and test situation beforehand, the study was conducted by classes. Generally, all of the testing was completed in one class before going on to another. As each pair of Ss completed the testing they returned to their classroom. Then, using a predetermined list provided by the experimenter, the teacher sent the next two children by themselves to "see the cartoons." The interval between departure and arrival of Ss, approximately 10 minutes, was used by E to rewind the films.

As soon as the Ss were seated in the viewing room E started the film and took a seat behind them. The cartoons were shown on a large tele-screen. Immediately after the film, the children were asked if they would like to see another movie. All Ss responded eagerly and were taken to the adjacent testing room. Upon entering the room E said "I have a lot of work to do (pointing to a stack of papers on the desk) so I will be very busy. But, while I'm working you can watch the movie over here, see?" The experimenter then pointed to the peep-hole in the box and directed each child to look through the hole. Once satisfied that the Ss understood the procedure, E started the film, closed and locked the box, then walked to the other end of the room to "begin his work." He sat with his back toward the Ss and switched on the video tape recorder. E

ignored all comments addressed to him. If any child became insistent he said "I am very busy, I have a lot of work to do."

Children in the no-cartoon condition were taken directly to the testing room. One male experimenter conducted the study.

In order to rate the children's behavior each video tape recording was shown twice. A different child was rated on each showing according to predetermined response categories by the experimenter and an independent judge, naive as to the treatments and purpose of the investigation. The tapes covering the 15 minute testing session were divided into 5-second intervals, yielding a total of 180 observations per child.

Test of Aggression

The purpose of the test was to create a realistic situation for the instigation of aggression. The procedure may be summarized as follows: (1) the children were tested immediately after viewing the cartoons, (2) they were presented with an attractive goal, (3) the barrier to the goal was another child of the same sex and age, and (4) in order to attain the goal a child must move the barrier or keep from being moved himself. This paradigm maintains continuous frustration between children and should be more frustrating than the single act of an adult taking away toys (e.g. Bandura et. al., 1963a) or forcing S to perform routine tasks under frequent criticism before entering the testing situation (e.g. Mussen & Rutherford, 1961).

Response measures

Four response measures were obtained:

Pushing. This category was rated whenever the S who was watching

the "peep-show" was pushed or hit by his partner in order to gain access to the peep-hole, and conversely, whenever the child watching the movie responded with similar acts.

Grabbing. This category was rated whenever S grabbed his partner about the neck or waist and pulled him away from the peep-hole.

Hand over hole. Subject places his hand over the peep-hole to prohibit the other child from seeing the movie.

Sharing. A number of Ss in the pilot study responded to the test situation by taking turns. Therefore, this behavior was also rated. A sharing response was said to occur if the child viewing the movie voluntarily moved aside to allow his partner to watch the movie.

An attempt to rate verbal aggression was not successful. The Ss' verbalizations were muted by the audio portion of the film and the sound proofing of the testing room. However, verbal and physical aggression usually occurred together.

The three aggression scores were summed for each child and these total scores were then used to obtain the inter-rater reliability of aggression. This reliability, expressed by the Pearson correlation coefficient, was .98. The reliability of the sharing ratings was .96.

Results

The mean aggression and sharing scores for Ss in the experimental and control groups are presented in Table 1.

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Insert Table 1 about here

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The results of the analysis of variance (Table 2) performed on the

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total aggression scores revealed that there were no significant differences between the three treatment groups. Therefore, there is no support for the hypothesis that viewing aggressive cartoons arouses aggressive behavior. This is particularly surprising in that the test situation was both permissive and frustrating. For aggressive behaviors the only significant main effect was the sex effect. That is, boys exhibited significantly more aggression than girls. Additional analyses indicated that this effect was primarily due to "pushing." This category included 86% of the aggressive behavior ($F = 6.42$, 1/54, $p < .05$). There was no significant sex difference on either of the other two aggression categories, although girls were more likely to place their hand over the peep-hole if their partner would not let them see the movie. This act usually resulted in more aggression. The video tapes of the test revealed that many children would initiate aggression, then quickly stop to look back at E. But, no reprimands were forthcoming. Subsequent aggressive acts would then increase in number and intensity and verbalizations would become louder. In fact, some Ss deliberately elicited aggression from their partners by excitedly describing the film, then denying them access to it e.g. "Oh, it's beautiful!" "Let me see!" "No, you took too long!"

The analysis of variance (Table 3) on sharing responses revealed

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Insert Table 3 about here

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significant treatment, sex, and interaction effects. The Ss who viewed the aggressive cartoon displayed significantly less sharing behavior than Ss in the other two groups. However, the significant interaction effect indicates that the aggressive film acted selectively on the males. The sharing behavior exhibited by the males who viewed the aggressive cartoon, as compared to the females, was greatly reduced. This was true in spite of the fact that, overall, boys shared significantly more than girls. In addition, this was the only condition in which boys exhibited significantly fewer responses than girls.

Several Ss decided to take turns by counting to 60. After reaching the number agreed upon the child viewing the movie employed various delaying strategems, e.g. "Let's count to 80" or "I'll tell you when I see something new." This solution broke down rapidly if the narration and music became very exciting (e.g. the dinosaur fight scene) because Ss would begin skipping numbers or counting very rapidly.

Since the Ss in this study came from a wide variety of backgrounds, it is possible that a disproportionate number of Ss from one social class within a treatment may have significantly affected the results. However, the distribution of social classes (determined by occupational level index of the McGuire-White Scale) within treatments was practically identical. The mean occupational level of the status parent for Ss in the aggressive, nonaggressive, and no-film condition was 3.75, 4.0, and 3.9 respectively. Similarly, each of these conditions contained 8, 10, and 9 Negro children respectively. The uniform distribution of Ss by race and social class within treatment groups emphasizes the efficiency of the randomization procedure used.

There was also some evidence that both treatment films had an inhibiting effect on aggressive responses. Subjects in the no-film group exhibited more total aggression than did Ss who viewed a film although the difference was no significant ($F = 3.54$, 1/56. $p < .07$).

This result is probably due to procedural differences. All of the children were eager to see the cartoons, and their five minute walk to the experimental rooms probably raised their level of excitement. However, all Ss in the experimental groups were seated together watching a film for at least 10 minutes while Ss in the no-film group entered the test situation immediately.

Discussion

The results of the present investigation are consistent with those reported by Siegel (1956). That is, aggressive cartoons had no significant effect on children's aggressiveness in a subsequent play situation with another child of the same sex and age. In two out of three experiments Lovaas (1961) also failed to find significant differences in aggression between Ss who viewed an aggressive or nonaggressive cartoon. In his third experiment all Ss were instructed to begin play on the aggressive toy (dolls) "...to insure that some behavior was recorded on the dolls (p. 41)." Halfway through the testing session E reminded the Ss that they could play with either toy (aggressive or nonaggressive). Following this suggestion 20% of the Ss in the experimental group and 40% of the Ss in the control group switched from play on the aggressive toy to the nonaggressive toy. These instructions do not seem to have a necessary relationship to the theoretical framework from which the hypotheses were derived. Hopefully these findings will lead to some attempts to discover the precise nature of the relationship between such instructions and the patterning of S's responses.

In a similar study Mussen and Rutherford (1961) aggression was measured by the child's desire to pop a balloon. Although Ss in the

experimental group responded positively significantly more often than Ss in the control group the authors state "There is no evidence in the data to support that, in an unselected group of subjects, those who increase in the measure of aggression used here become more hostile toward other children...(p. 462)." Further questions of validity can be raised in that the "balloon test" failed to reveal sex differences. Kagan's conclusions (1964) are representative of consistent findings in this area; "Indeed, it is difficult to find a sound study of preschool or school-age children in which aggressive behavior was not more frequent among boys than among girls...(p. 140)." Finally, a study reported by Bandura et. al. (1963a) reveals further information about the effects of aggressive cartoons. After viewing a film in which an adult exhibited novel aggressive acts toward a Bobo doll, Ss demonstrated significantly more nonimitative aggression, in the form of aggressive gun play, than Ss who did not view the film. However, Ss who viewed the same novel aggressive responses performed by a "cartoon" model (actually a costumed adult) failed to demonstrate more aggressive gun play than the control group. However, boys were significantly more aggressive than girls in gun play and other nonimitative acts of aggression.

On the basis of existing evidence it must be concluded that aggressive cartoons have little effect on children's aggression in interpersonal play. Previous research on modeling and disinhibition effects with both children and adults suggests a possible explanation for the present findings. That is, the effects of observing a model may depend simultaneously upon the degree of realism of the model's performance

(on a reality-fantasy dimension) and similarity between the observer's task and the model's behavior (for a review of these two variables and their effect on imitation, see Flanders, 1968). This hypothesis would predict maximum observer effects for a realistic model where the observer's and model's task is identical and minimum effects when the stimulus situation of an imaginary model is unlike that of the observer. This hypothesis would predict minimum effects for animated cartoons since the models as well as the stimulus conditions are imaginary. Bandura's study (Bandura et. al., 1963a) is consistent with this interpretation. Subjects who viewed the real-life aggressive model demonstrated significantly more imitative aggression than Ss who observed the cartoon model who, in turn, exhibited significantly more imitative aggression than the control group. This ordering is consistent with the hypothesis since the stimulus conditions of the treatment and test were highly similar. Also, it has been shown with adults that realistic aggressive models have a disinhibitory effect in test situations that are unlike the stimulus condition (e.g. Walters & Thomas, 1963).

Sharing emerged spontaneously in 90% of the Ss and with greater frequency than aggressive responses. The high incidence of sharing responses was probably caused by the social context of the testing situation and by cues provided by E. As previously stated, the entire study was conducted in a school. Within the school context such behaviors as standing in line, waiting, and taking turns are encouraged and reinforced. Therefore, the extensive amount of sharing exhibited by the Ss in the present investigation could be attributed, in whole or in part, to patterns of behavior expected of children who are in school. In addition, by directing each child to look through the peephole at the beginning of each testing session E may have inadvertently

provided cues for sharing but not for aggression. Moreover, these cues problably had a greater effect on the boys since E was a male. This would explain the fact that boys displayed significantly more sharing behavior than girls. More research is needed in this area, particularly since this category of response appears to be more sex-role appropriate for girls than boys. It might also be suggested that the same constraints operating in the school situation prevented the children from exhibiting aroused aggressive tendencies after viewing the aggressive cartoons. However, this has not been the case in previous research (e.g. Hicks, 1968).

The reduction of sharing responses demonstrated by the males who viewed the aggressive cartoon was not predicted. It is difficult to interpret this finding particularly since sharing represents a different class of responses than that depicted in the film. If the definition of aggression is broadened to include resistance to the performance of prosocial behavior (sharing), the aggressive cartoon would seem to have increased "hogging" behavior in the boys. However, the correlation between sharing and total aggression while negative was not significant. Preferably, it may be hypothesized that aggressive films affect other categories of behavior besides aggression. The aggressive cartoons used in the present investigation may have inhibited the performance of prosocial behavior without simultaneously increasing aggressive responses. Other possible effects may include verbal interaction behaviors or withdrawal from the situation. Furthermore, such cartoons may act selectively such that a relatively small proportion of the children are strongly affected. The large variance in aggressive responses,

relative to the means, under the aggressive cartoon condition makes such a supposition reasonable. To investigate this possibility further research is planned in which children are matched on variables which were randomized in the present study e.g. level of aggressiveness, social class, and race. Additional research is needed to investigate the developmental patterns and varieties of sharing behaviors in dyadic situations.

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FOOTNOTES

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[2]Treatment-aggressive: "Fair Weather Fiends" and "Box Car Bandit," A Walt Lantz cartoon. Treatment-nonaggressive: "Toot, Whistle, Plunk and Boom." A Walt Disney film. Test film: "A World is Born" -- The Rites of Spring" sequence from "Fantasia." A Walt Disney film.

TABLE 1

MEAN AND STANDARD DEVIATIONS OF AGGRESSION AND SHARING SCORES FOR ALL GROUPS

Response Measure		Aggressive Cartoon		Non-Aggressive Cartoon		No Cartoon	
		M	F	M	F	M	F
Total aggression	$\bar{x}$	13.4	9.2	11.4	9.1	25.8	10.0
	σ	18.3	14.4	6.4	13.5	17.8	9.8
Pushing	$\bar{x}$	12.9	7.7	10.4	6.1	22.8	8.3
	σ	17.7	12.0	6.9	8.0	15.7	8.6
Grabbing	$\bar{x}$	0.5	0.6	0.6	1.9	2.5	1.5
	σ	0.9	0.8	0.8	4.2	3.1	2.2
Hand over hole	$\bar{x}$	0.0	0.9	0.4	1.1	0.5	0.2
	σ	0.0	2.1	0.9	2.6	0.9	0.4
Sharing	$\bar{x}$	8.8	13.3	34.0	12.6	26.9	18.6
	σ	8.0	12.0	18.3	8.4	23.3	19.7

TABLE 2

ANALYSIS OF VARIANCE FOR TOTAL AGGRESSION SCORES

Source	df	MS	F
Treatments (T)	2	343.95	1.73
Sex (S)	1	828.91	4.19*
T x S	2	267.01	1.35
Error	54	197.75	

*p < .05

TABLE 3

ANALYSIS OF VARIANCE FOR SHARING RESPONSES

Source	df	MS	F
Treatment (T)	2	957.51	3.69*
Sex (S)	1	1058.40	4.08*
T x S	2	838.55	3.23*
Error	54	259.24	

*p < .05